



I. Trend and Ratio Analysis

- Use statistics to determine whether relationships exist between two variables. A manager forecasting HR needs must look for variables related to HR that appear to change predictably over time. The manager is looking at the past performance as a predictor of the future.

A. Trend Analysis

- Using the six years of performance data in the below figure, the HR manager wants to project the demand for employees for years seven and eight.

Year	Sales in EGP	No. of Employees	Annual Sales /Employee EGP
	(Business Factor)	(HR Demand)	(Labor Productivity)
1	3,613,000	325	11,120
2	3,748,000	337	
3	3,880,000	310	
4	4,095,000	327	
5	4,283,000	342	
6	4,446,000	355	

- To accomplish this, a simple trend analysis can be used to plot the number of employees each year for the past six years and then simply projects this trend out for two more years to predict the number of employees needed.
- A statistical formula [relation between (Years: X) and (No. of employees: Y)] can be used to calculate the slope of the trend line. Substitute (X) in the equation to predict the number of employees needed (Y).

B. Ratio Analysis

- The HR manager could also use the above figure to project the demand for employees by using ratio analysis. Assuming that the labor productivity will remain the same and sales are predicted to increase to EGP 5 million in year seven. Calculate the estimated number of employees to be hired in year seven.
- However, let's say that management believes that because of new efficiencies created by better training and equipment, labor productivity will increase to EGP 13,000 for year seven (Sales FC. EGP 5 million). In this case calculate the estimated number of employees to be hired.



II. Using the “Scatter Plot Method” to forecast the number of nurses required for a new hospital

Hospital	Number of Beds (X)	Number of Nurses (Y)
1	30	40
2	85	82
3	25	29
4	75	82
5	50	39
6	35	33
7	40	34
8	95	85
9	120	110
10	70	75

Steps:

1. PowerPoint – Insert chart; type: XY (Scatter)
2. Fill the data sheet with the number of beds (X) and number of nurses (Y)
3. Use the chart layout; plot and format the trend line (display equation on chart)
4. Forecast the number of nurses (Y) required in case of:
 - A. 20 –bed Hospital (X=20)
 - B. 100 – bed Hospital (X=100)
5. Substitute in the equation the number of beds (X) to find the number of nurses (Y)